WHAT IS CLAIMED IS:

1. A method for preparing a flexographic printing plate, the method comprising:

mounting a printing plate comprising a photosensitive imageable layer on a cylindrical drum; and,

while the printing plate is on the drum:

applying a surface mask layer to the printing plate, the surface mask layer masking a surface of the photosensitive imageable layer;

applying an edge masking layer to at least one edge of the printing plate, the edge masking layer masking at least a portion of at least one edge of the photosensitive imageable layer; and,

patterning the surface mask layer;

wherein applying an edge masking layer is performed in response to at least one of: image data; format data; data relating to one or more dimensions of the printing plate; data relating to one or more edge locations of the printing plate; data relating to one or more dimensions of the photosensitive imageable layer; and data relating to one or more edge locations of the photosensitive imageable layer.

2. The method of claim 1 wherein both the surface mask layer and the edge masking layer are formed from a material having the same composition.

3. The method of claim 1 comprising irradiating the edge masking layer to form an edge mask area.

4. The method of claim 1 wherein patterning the surface mask layer comprises imagewise irradiating the surface mask layer.

5. The method of claim 1 wherein the printing plate comprises a continuous photopolymer sleeve.

6. The method of claim 1 wherein the printing plate comprises one or more plate sections applied to a tubular sleeve, each plate section comprising a photosensitive imageable layer.

7. The method of claim 1 comprising exposing at least a portion of the photosensitive imageable layer to actinic radiation.

8. The method of claim 7 wherein exposing at least a portion of the photosensitive imageable layer to actinic radiation is performed while the printing plate is on the drum.

9. The method of claim 7 wherein exposing at least a portion of the photosensitive imageable layer to actinic radiation is performed after removing the printing plate from the drum.

10. The method of claim 7 comprising, after exposing at least a portion of the photosensitive imageable layer to actinic radiation, removing portions of the photosensitive imageable layer to form a relief image.

11. The method of claim 1 wherein the at least one edge of the photosensitive imageable layer comprises a bevelled profile, the bevelled profile having a bevel angle of less than 90°.

12. The method of claim 11 comprising cutting the bevelled profile on an automated cutting table in accordance with format data supplied to a controller associated with the automated cutting table.

13. The method of claim 2 wherein applying the surface mask layer to the printing plate and applying the edge masking layer to the at least one edge of the printing plate are performed in a single operation.

14. The method of claim 2 wherein the material having the same composition comprises a negative working material.

15. The method of claim 14 wherein the negative working material contains carbon.

16. The method of claim 2 wherein the material having the same composition comprises a positive working material and wherein the method comprises rendering the edge masking layer opaque to actinic radiation by exposing the edge masking layer to radiation.

17. The method of claim 1 wherein the surface mask layer comprises a positive working material and the edge masking layer comprises a negative working material.

18. The method of claim 1 comprising determining, based on format data associated with the printing plate, at least one of: the data relating to one or more edge locations of the photosensitive imageable layer; the data relating to one or more dimensions of the photosensitive imageable layer; the data relating to one or more edge locations of the printing plate; and the data relating to one or more dimensions of the printing plate.

19. The method of claim 1 comprising determining, using an edge detection sensor, at least one of: the data relating to one or more edge locations of the photosensitive imageable layer; the data relating to one or more dimensions of the photosensitive imageable layer; the data relating to one or more edge locations of the printing plate; and the data relating to one or more dimensions of the printing plate.

20. The method of claim 19 wherein the edge detection sensor comprises at least one of: an optical sensor; an imaging sensor; a capacitive probe; and a physical contact-based edge detector.

21. A method for preparing a flexographic printing plate, the method comprising:

mounting one or more plate sections to a tubular sleeve, each plate section comprising a photopolymer layer;

mounting the tubular sleeve with mounted plate sections on a cylindrical drum; and,

while the sleeve is on the drum and in response to data provided by a controller, applying an edge masking layer to the one or more plate sections, the edge masking layer masking one or more edges of the photopolymer layers associated with the one or more plate sections.

22. The method of claim 21 wherein the one or more plate sections comprise an integral surface mask layer.

23. The method of claim 21 comprising, while the sleeve is on the drum, applying a surface mask layer to printing areas of the one or more plate sections.

24. The method of claim 21 comprising applying a surface mask layer to printing areas of the one or more plate sections.

25. The method of claim 21 wherein the one or more edges of the photopolymer layers comprise a bevelled profile, the bevelled profile having a bevel angle of less than 90°.

26. The method of claim 25 comprising cutting the bevelled profile on an automated cutting table in accordance with format data supplied to a controller associated with the automated cutting table.

27. The method of claim 21 wherein the data provided by the controller comprises data related to locations of the one or more edges of the photopolymer layers and the method comprises determining the data related to locations of the one or more edges of the photopolymer layers on the basis of format data associated with the one or more plate sections.

28. The method of claim 21 comprising determining locations of the one or more edges of the photopolymer layers using an edge detection sensor.

29. The method of claim 28 wherein the edge detection sensor comprises at least one of: an optical sensor; an imaging sensor; a capacitive probe; and a physical contact-based edge detector.

30. A method for preparing a flexographic printing plate, the method comprising:

mounting a printing plate comprising a photopolymer layer on a cylindrical drum; and,

while the printing plate is on the drum and in response to data provided by a controller:

imagewise applying a patterned surface mask layer to a printing area of the printing plate; and,

applying an edge masking layer to the printing plate, the edge masking layer masking one or more edges of the photopolymer layer.

31. The method of claim 30 wherein the printing plate comprises a continuous photopolymer sleeve.

32. The method of claim 30 wherein the printing plate comprises one or more plate sections applied to a tubular sleeve, each plate section comprising a photopolymer layer.

33. The method of claim 30 comprising exposing at least a portion of the photopolymer layer to actinic radiation.

34. The method of claim 33 wherein exposing at least a portion of the photopolymer layer to actinic radiation is performed while the printing plate is on the drum.

35. The method of claim 33 wherein exposing at least a portion of the photopolymer layer to actinic radiation is performed after removing the printing plate from the drum.

36. The method of claim 33 comprising, after exposing at least a portion of the photopolymer layer to actinic radiation, removing portions of the photopolymer layer to form a relief image.

37. The method of claim 30 wherein the one or more edges of the photopolymer layer comprise a bevelled profile, the bevelled profile having a bevel angle of less than 90°.

38. The method of claim 37 comprising cutting the bevelled profile on an automated cutting table in accordance with format data supplied to a controller associated with the automated cutting table.

39. The method of claim 30 wherein the surface mask layer and the edge masking layer are formed from a material having the same composition and wherein imagewise applying the patterned surface mask layer to the printing area of the printing plate and applying the edge masking layer to the printing plate are performed in a single operation.

40. The method of claim 30 wherein the data provided by the controller comprises data related to locations of the one or more edges of the photopolymer layer and the method comprises determining the data related to locations of the one or more edges on the basis of format data associated with the printing plate.

41. The method of claim 30 comprising determining locations of the one or more edges of the photopolymer layer using an edge detection sensor.

42. The method of claim 41 wherein the edge detection sensor comprises at least one of: an optical sensor; an imaging sensor; a capacitive probe; and a physical contact-base edge detector.

43. The method of claim 30 wherein applying the edge masking layer to the printing plate comprises ejecting liquid from one or more inkjet nozzles.

44. A method for preparing a flexographic printing plate, the method comprising:

mounting a printing plate on a cylindrical drum, the printing plate comprising an integral surface mask layer and a photopolymer layer; and,

while the printing plate is on the drum and in response to data provided by a controller:

applying an edge masking layer to the printing plate, the edge masking layer masking at least one edge of the photopolymer layer; and,

patterning the integral surface mask layer.

45. The method of claim 44 wherein patterning the integral surface mask layer comprises exposing the integral surface mask layer to an imagewise distribution of radiation.

46. The method of claim 44 wherein the printing plate comprises a continuous photopolymer sleeve.

47. The method of claim 44 wherein the printing plate comprises one or more plate sections applied to a tubular sleeve.

48. The method of claim 44 comprising exposing at least a portion of the photopolymer layer to actinic radiation.

49. The method of claim 48 wherein exposing at least a portion of the photopolymer layer to actinic radiation is performed while the printing plate is on the drum.

50. The method of claim 48 wherein exposing at least a portion of the photopolymer layer to actinic radiation is performed after removing the printing plate from the drum.

51. The method of claim 48 comprising, after exposing at least a portion of the photopolymer layer to actinic radiation, removing portions of the photopolymer layer to form a relief image.

52. The method of claim 44 wherein the at least one edge of the photopolymer layer comprises a bevelled profile, the bevelled profile having a bevel angle of less than 90°.

53. The method of claim 52 comprising cutting the bevelled profile on an automated cutting table in accordance with format data supplied to a controller associated with the automated cutting table.

54. The method of claim 44 wherein the edge masking layer comprises a negative working material.

55. The method of claim 54 wherein the negative working material contains carbon.

56. The method of claim 44 wherein the edge masking layer comprises a positive working material and wherein the method comprises rendering the edge masking layer opaque to actinic radiation by exposing the edge masking layer to radiation.

57. The method of claim 44 wherein the integral surface mask layer comprises a positive working material and the edge masking layer comprises a negative working material.

58. The method of claim 44 wherein the data provided by the controller comprises data related to locations of the at least one edge of the photopolymer layer and the method comprises determining the data related to locations of the at least one edge on the basis of format data associated with the printing plate.

59. The method of claim 44 comprising determining locations of the at least one edge of the photopolymer layer using an edge detection sensor.

60. The method of claim 59 wherein the edge detection sensor comprises at least one of: an optical sensor; an imaging sensor; a capacitive probe; and a physical contact-based edge detector.

61. A method for preparing a flexographic printing plate, the method comprising:

mounting the printing plate on a cylindrical drum;

providing a spray head comprising one or more spray nozzles for spraying edge masking material toward the drum and a controller connected to control relative movement between the spray head and the drum;

receiving, at the controller, information from which locations of one or more edges of the printing plate are determinable; and,

while the printing plate is on the drum and in response to the information received at the controller:

providing controlled relative movement between the spray head and the drum; and,

spraying edge masking material from the one or more spray nozzles onto the one or more edges of the printing plate.

62. The method of claim 61 comprising, prior to mounting the printing plate on the drum, bevelling the edges of the printing plate.

63. An apparatus for applying an edge masking material to edges of a printing plate, the apparatus comprising:

a drum for supporting a printing plate on a cylindrical surface thereof;

a spray head comprising one or more spray nozzles oriented to spray an edge masking material toward the drum;

one or more actuators for providing relative movement between the spray head and the drum; and,

a controller connected to receive information from which locations of one or more edges of the printing plate are determinable and, in response to the information, the controller configured to:

provide suitable control signals to the one or more actuators for controlled relative movement between the spray head and the drum; and,

provide suitable control signals to the one or more spray nozzles to cause the one or more spray nozzles to spray edge masking material onto the one or more edges of the printing plate.

64. The apparatus of claim 63 wherein the one or more edges of the printing plate comprise a bevelled profile.

65. The apparatus of claim 63 wherein the moveable spray head comprises one or more spray nozzles for spraying a surface mask material toward the drum and, in response to the information received at the controller, the controller is configured to provide controlled relative movement between the spray head and the drum by providing a suitable control signal to the one or more actuators and to spray a surface mask material from the one or more spray nozzles onto an imageable surface of the printing plate.

66. The apparatus of claim 65 wherein the surface mask material is the same as the edge masking material and the one or more spray nozzles for spraying the surface mask material are the same as the one or more spray nozzles for spraying the edge masking material.

67. The apparatus of claim 63 comprising a mounting table for supporting the printing plate and a pressure roller, the pressure roller and the drum rotatable about their respective elongated axes and movable to positions adjacent an edge of the mounting table where a leading edge of the printing plate projects between the pressure roller and the drum and where rotation of the pressure roller and the drum draws the printing plate from the mounting table and onto the cylindrical surface of the drum.

68. The apparatus of claim 67 wherein a tubular sleeve is supported on the cylindrical surface of the drum, the tubular sleeve interposed between the cylindrical surface and the printing plate.

69. The apparatus of claim 63 comprising a tubular sleeve mounted on the cylindrical surface of the drum and means for mounting the printing plate on the tubular sleeve.